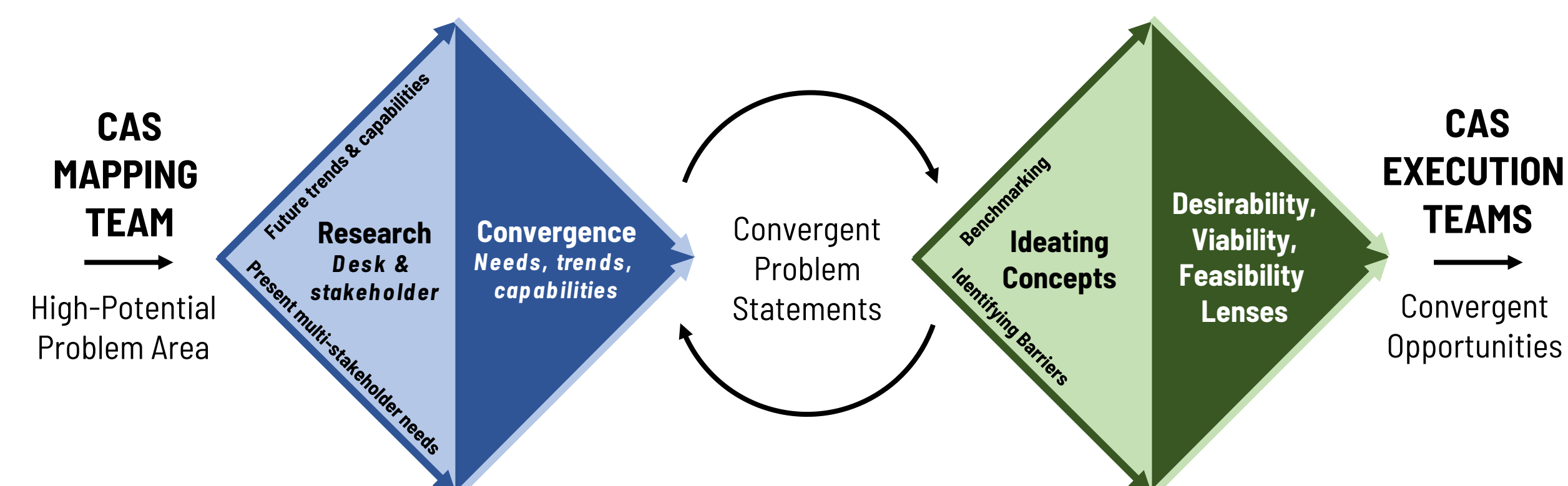


CAS Synthesis: Helping aviation to address complex societal problems

Conducting design research and stakeholder engagement to formulate convergent problems that can benefit from NASA capabilities

Formulating Complex Sociotechnical Problems

We work across disciplines, centers, communities, and industries to explore complex sociotechnical challenges and co-develop desirable aviation futures that establish new high-impact opportunities for ARMD.



How We Work

- **Transdisciplinary teams:** we build diverse teams that go beyond the traditional roles, disciplines, and backgrounds within NASA
- **Stakeholder engagement:** we engage many types of contributors and catalysts from everyday citizens who live the problems to experts in industry and academia
- **Design research:** we use well-honed methods from the design theory & methodology field to formulate complex sociotechnical challenges and generate potential solutions
- **Human-centered:** we keep societal context at the center of everything we do

What We Work On



Compelling societal problems
e.g., revitalizing rural communities



Future aviation challenges
e.g., weather tolerant ops for UAM



Workforce development
spreading an innovation culture; recruiting next-gen innovators to NASA

Capabilities and Services

We offer a suite of services that help teams to understand, scope, and begin to address complex sociotechnical problems:

- **Engaging stakeholders** and generating design insights
- **Formulating convergent problems** that incorporate stakeholder needs, trends, and emerging technology capabilities
- **Ideating concepts**
- **Soliciting feedback** and revising concepts or problem formulations
- **Identifying barriers** related to stakeholder desirability, market viability, and technical feasibility
- **Storytelling**, i.e., effectively advocating for a problem and/or proposed solution

45 Stakeholder Interviewees
(135 Needs Statements)



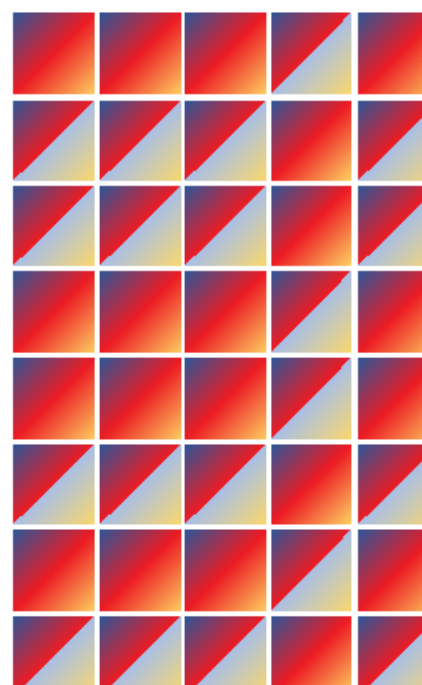
13 Health Care Trends



10 Technology Trends



40 Convergent
Problem Statements

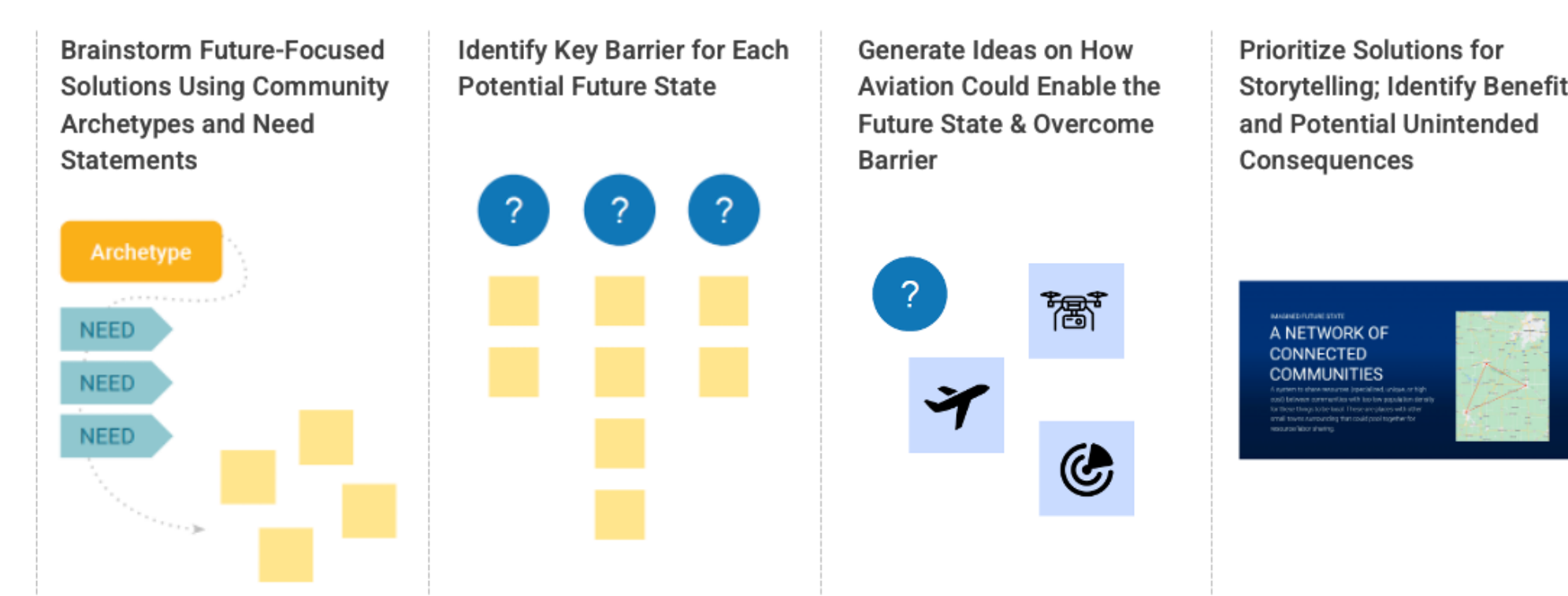


7 Convergent
Problem Canvases



Example Process: Formulating convergent problems

Generating Future States



Example Process: Ideating potential aviation futures



In-person design collaboration

Transdisciplinary work

Interns are a vital part of our team!

How to Engage With Us

For NASA: join a CAS team (for as little as a week), or partner with us to facilitate a design workshop for your project.

For Industry/Academia: join us in co-design, become a part of our network of SMEs to be called upon for consultation on needs or feedback on solutions.

For Students: intern with us!

CONTACTS

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